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17 August 1966

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To: [redacted]

Subject: HELMET REVISIONS FOR PILOT COMFORT AS OF 11 AUGUST 1966

Dear Harry,

The following is the status of the subject helmet modifications as we understand them.

25X1A

Per a telephone conversation with David Clark Company Thursday, the arrival of their [redacted] with the valve on Monday the 15th, as understood by you is no longer scheduled.

They do not even have the valve in hand as yet, and are expecting Firewel to complete it possibly this week.

The new valve is larger in diameter than the original that they brought out on the prototype aluminized helmet, and its mounting configuration is completely different, partially for serviceability reasons. Changes in plumbing require some or all of the present plumbing to be removed and revised where necessary, with silver soldering involved.

Thus, they consider that the new valve cannot be installed by field retrofit. They state that you told Joe to get the helmet back there for the job and to cancel all previous plans for trying to do it here. I have therefore shipped the helmet Air Express and it should have arrived there last Friday.

Configuration differences in the new valve include the use of a spring and diaphragm in place of the small bellows-spring we have seen so far, plus an aneroid device to automatically cut oxygen flow back to demand in case the suit pressure reaches 33,000 feet equivalent. The latter is a welcome safety improvement, without which the pilot might rapidly deplete his pack oxygen if he did not or could not manually turn off his "excess oxygen" flow at ejection time. The new valve's knob will not have detented action.

As regards the very poor job of aluminizing done on the prototype helmet I stated that they should strip and replace this while they have the helmet there. In its present horrifying condition, I would be ashamed to present the helmet to our pilots for evaluation purposes.

17 August 1966

Expected Date of Helmet Return

They are not aware as to the time involved in re-aluminizing, but felt that in any case if they can have the helmet back by 15 August, they can have it back to us on or before 1 September in the following configuration:

1. New extra-oxygen valve and related plumbing installed.
2. Re-aluminized outer surface. (Probably. They are checking on this.)
3. Spraybar replaced with an existing spraybar, so we will have a place to start from in revising the flow pattern (eyelid tickling problem).

I. R. Shields

It has been determined that the reason for the coating on the first six shields being so unsuccessful was that the shield material was Plex 2 instead of Plex 55. They had written the Purchase Order for these and had specified Plex 55; however, somewhere down the line, and they don't know where, the requirement was changed to the Plex 2. There is a possibility that it happened because Plex 55 in proper thickness for an auxiliary shade was not readily available at the moment. (The [redacted] I. R. shade that we have tested so successfully is Plex 55, but is actually a visor, not an auxiliary shield, as regards material gauge).

Perkin-Elmer has stated they cannot recoat these previously coated shields, because they are the Plex 2 material. The David Clark face-shield man is now expediting procurement of new Plex 55 blanks and will continue with follow-up of these at Perkin-Elmer. The expected date of arrival of these shields here is presently thought to be "sometime in the second week of September." We plan to immediately evaluate them in heat runs at that time.

Although, as noted above, Perkin-Elmer has stated they cannot coat the original Plex 2 shields, they have proceeded to do so anyway with one of the six. A different type of cleaning solution was used before coating, and it looks better by far than the original poor coatings. David Clark is now evaluating this Plex 2 shield to see if it is worthy of re-insertion into the program. There is no answer on this at the moment.

Best regards,

25X1A

[redacted]

meb